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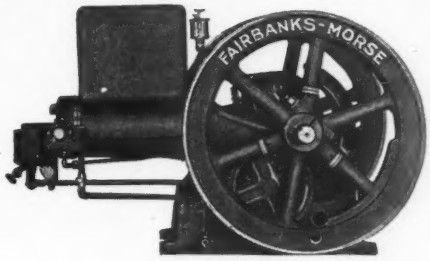

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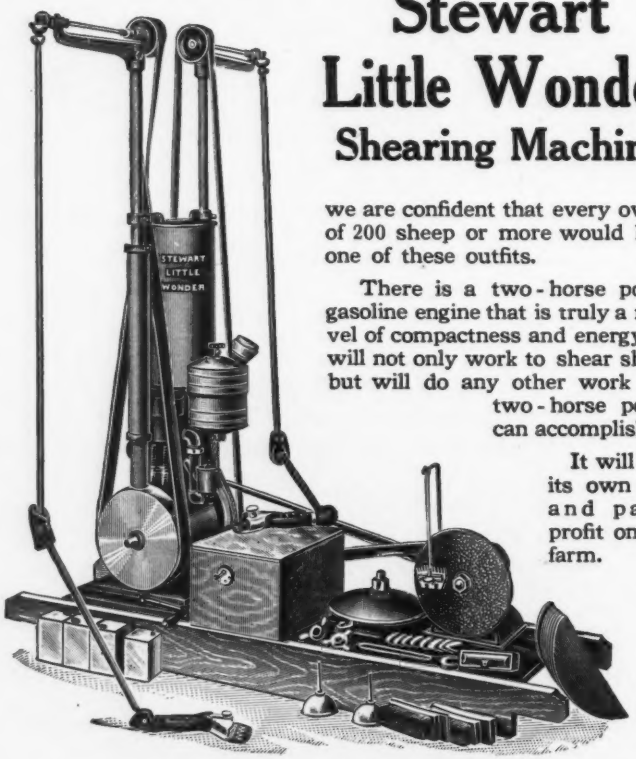

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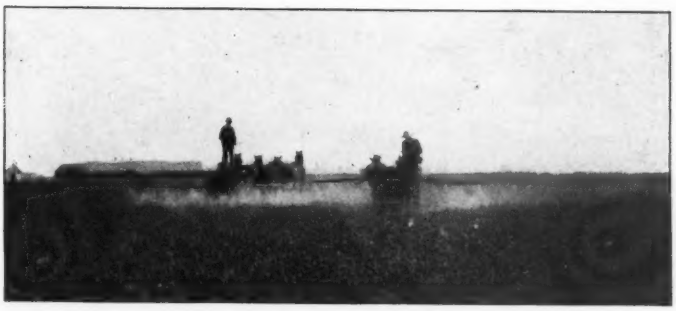

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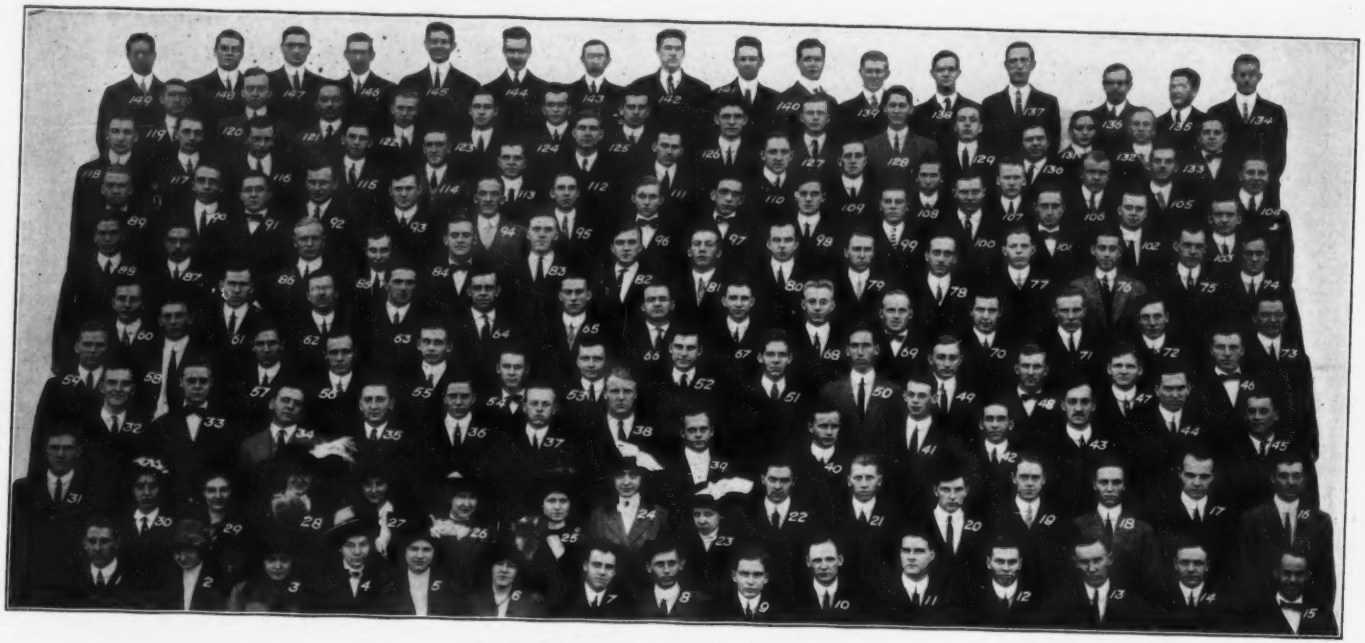

SENIOR CLASS 1913. COLLEGE OF AGRICULTURE

For Key See Page 393

Courtesy J. P. Troy

The Cornell Countryman

Vol. 10 JUNE, 1913 No. 9

SURVEY OF THE AGRICULTURAL JUNIOR CLASS 1912-1913

SURVEY figures were obtained from as many of the class as possible, and the results secured cover 134 members.

Of these 106 came from New York State, six from Pennsylvania, five from Ohio, three each from Massachusetts and New Jersey, and one each from Washington, Maine, Missouri Texas, South Carolina, Maryland, Colorado, Louisiana, Michigan, and one from Nova Scotia, and one from China.

Those from New York State arranged as to counties give New York City and Brooklyn the lead with 13, Tompkins Co., 10, Monroe 8, Erie 7, Orange and Otsego each 4, Delaware, Orleans, Cattaraugus, Steuben, Chemung, Westchester, Washington, Montgomery, St. Lawrence and Tioga each 3, Chautauqua, Seneca, Niagara, Oswego, Herkimer, Cortland, Rensselær and Jefferson each 2, and 14 other counties each 1 representative.

The ranks from Tompkins Co. are probably well filled because of its nearness to the College of Agriculture. But the representation from the other counties appears to bear a direct relation to the agricultural prosperity of the county, placing Monroe and Erie counties well at the head.

One hundred and twenty-nine responded to the question, "Was the fact of free tuition a factor in influencing you to take agriculture rather than some other course in the University." Of these, 17 said that it was perhaps of some influence, but 112 said that "free tuition" did not enter into their choice of a course.

The above figures would seem to contradict the opinion that is so frequently expressed that "free tuition is swelling the ranks of the agricultural college with a great host of students who are taking agriculture merely to take advantage of free tuition in getting a college education, with the intention of pursuing some other line of work." However, we do not feel that the granting of free tuition is a waste of state funds, for although it is seldom a factor in persuading a student to pursue agriculture in preference to some other course, we believe that many of those who are taking agriculture because it is the course they wish to pursue would be unable to take this course or any other college course if they were obliged to pay a high tuition in addition to their other expenses.

Of 129 students, 89 entered the University direct from preparatory school. Of those who did not enter directly, 18 spent an interval of one year, 11 an interval of two years, and 11 an interval of more than two years. During the interval 10 were engaged in business, 10 in teaching, 15 in farming, two at day labor, one in forestry work, one an agent, and one in housekeeping.

As to farm experience—of 134 students 29 have had no experience, 20 have had less than one year's experience, 40 have had from one to five years' experience, 17 have had from six to ten years' experience, 38 have had from 11 to 20 or more years' experience and 29 have always lived on a farm.

Of 134 students, it was found that 25 cannot trace themselves back to any agricultural ancestry. So far as they know, neither their father nor mother, nor any of their four grandparents were farmers or farm reared. This seems to clearly indicate the place that agriculture takes at the present day when compared with other professions. It is no longer considered on a lower level than other professions. Studying the statistics of the 134 people surveyed, it was found that in the preceding generation, when agriculture was perhaps at about its lowest level, there was not a single instance where a man had taken up agricultural work who had not been brought up in actual farm work, whereas there were several who had been reared on farms but had followed other pursuits. This strongly illustrates the difference in the attitude toward agriculture of the preceding generation and that of the present generation.

Of the 134 students, there were 71 whose fathers were farm reared, and 63 whose fathers were not farm reared; there were 73 whose mothers were farm reared and 61 whose mothers were not farm reared; nine had but one grandparent farm reared, 16 had two grandparents farm reared, seven had three grandparents farm reared and 77 had all four grandparents farm reared.

Classifying the students according to size of farm from which they came, the statistics appear to confirm the statement by Prof. G. F. Warren in farm management that there appears to be a direct relation between size of farm and percentage of boys retained on the farm.

4 came from farms of less than 10 A
4 " " " " from 10–40 A
16 " " " " " 41–100 A
23 " " " " " 101–200 A
19 " " " " " over 200 A

Though there are less from farms of more than 200 acres than from farms of 101 to 200 acres, the number per equal number of farms is probably much greater.

One hundred and twenty-one responded to the question, "Do you intend to settle ultimately on a farm of your own?" Ninety-six replied in the affirmative, and 25 in the negative.

Believing that their answer would in general be an expression of their opinion as to the possibilities for success in their home community as compared with other regions, they were asked the question, "If you do intend to settle ultimately on a farm of your own, do you expect to settle in your home community?" Forty-one replied in the affirmative and 58 replied in the negative.

The students are specializing in a great variety of lines of work.

31 are specializing in general agriculture
24 " " " pomology
25 " " " poultry and fruit
9 " " " science
11 " " " farm management
7 " " " animal husbandry
7 " " " dairy work
6 " " " horticulture and floriculture
5 " " " poultry
6 " " " forestry
1 is " " landscape art
1 " " " fruit and vegetable growing
1 " " " plant breeding
1 is planning to pursue cotton farming.

One hundred and twenty-eight responded to the question, "What do you intend to do after leaving college?"

Seventy are planning to go into farming, 22 into government work, 15 into educational work, 14 into commercial work, three intend to take up dietition work, and four intend to take up housekeeping.

Of the 134 persons surveyed, 19 are girls.

The age of the youngest person in the class is 19, that of the oldest 40. The average age of the class is 22.

One hundred and twenty-seven persons gave their expenses for freshman and sophomore year.

The total for the freshman year was $60,437

The total for the sophomore year was $63,184

Average per individual freshman year, $475.88

Average per individual sophomore year, $497.51

Freshman Year	Sophomore Year	
14	14	kept their expenses below $300.
47	39	kept their expenses between $300–$400
31	37	kept their expenses between $401–500
35	37	had expenses over $500.

The above expenses cover all expenses whether earned wholly or in part, or whether paid in cash.

Earnings During the College Year

Total earnings during the freshman college year were $8,265.
Total earnings during the sophomore college year were $9,203.
61 earned something during the freshman year.
64 earned something during the sophomore year.
The average earning for the 61 was $135.49 freshman year.
The average earning for the 64 was $143.80 sophomore year.
The average earning for the 127 during freshman year was $65.08.
The average earning for the 127 during sophomore year was $72.46.

Sixteen earned over $200.00 during freshman year. Nineteen earned over $200.00 during sophomore year.

Earnings During the Summer

Of the 127 persons replying, 104 worked during their freshman summer and 111 during their sophomore summer.
Total earning during freshman summer $9914.
Total earning during sophomore summer, $11752.
Average for the 104 during freshman summer, $95.38.
Average for the 111 during sophomore summer, $105.87.
15 earned over $200 during the freshman summer
8 earned over $200 during the sophomore summer

Savings from Summer's Work

Total savings from freshman summer's work, $3363.
Total savings from sophomore summer's work, $3901.
Average for the 87 saving from freshman summer work, $38.66.
Average for the 94 saving from sophomore summer work, $41.50.
32 saved $100 or more during freshman summer.
30 saved $100 or more during sophomore summer.

In answer to the question, "What did you do during the summer of your freshman year?"

65	replied	farming
12	"	agent
10	"	day labor
8	"	attended summer school
6	"	commercial work
4	"	clerk
3	"	house work
2	"	on railroad
1	"	green house work
1	"	city forestry
1	"	serving
1	"	teaching

"During the summer of your sophomore year?"

73	replied	farming
5	"	commercial work
11	"	day labor
12	"	attended summer school
3	"	agent
5	"	clerk
1	"	forestry work
3	"	domestic or home work
1	"	waiting table
1	"	scientific exper. work

It is plainly evident that farming is the most popular work among the agricultural students.

We realize that our work is not as complete as it should be, nor as efficient as such work can be made, and that if the work is continued by other junior classes, (and we hope that it will be) the value of the work can be greatly improved. However, we believe that the survey work will prove of interest and value not only to our own class, but also to the general public.

Junior Survey Committee,
Cornell Agricultural College
S. R. Lewis, chairman,
R. H. Cross,
H. D. Bauder,
W. F. Friedman,
R. C. Shoemaker,
Miss M. E. Wright.

KEEPING FRUIT TREE BUDS BY THE ICE-BOX METHOD

By G. Hale Harrison '16

THE keeping and selecting of fruit-buds is one of the most difficult and important problems of the nurserymen. Since there are very few nurserymen in America who handle their buds in the same manner, there are various opinions as to the best method. In former years most of the practicable methods of handling buds were tried by the Harrison Nurseries at Berlin, Maryland, sometimes with fair success, but very often with expensive failure. After a few years' experience in those nurseries, the writer noticed that some years there were good stands of buds among the peach and apple trees, while in other years the stands were very poor—the latter condition being more frequent. At that time no one could say what caused a fair stand of buds one year, and almost a total failure the next; although the same methods were used and most of the same men were employed. These frequent failures caused the various nurserymen to investigate whether there was a better way of handling buds than the "bucket method," which was the one then most commonly used.

The buds used in the "bucket method" were either from the nursery or orchard, but mostly from the former. This method was very simple and easy. From the time the buds were cut from the parent trees until they were used they were kept in a bucket, in water from three to six inches deep. The buds during the working hours in the bucket were generally exposed to the wind and scorching sun which in a short time warmed the water, thus causing the bud-sticks to draw up large quantities of it. If the bud-sticks remained in the water for any length of time, they became water-logged, thus causing the eyes, which are part of the buds, and the parts of the sticks under the eyes to turn brown. The browning of the bud-eye cannot always be detected unless the bud-stick is considerably water-logged. If a bud, in which the eye is totally or partly browned, is put in a tree it will almost invariably die. Although, it is obvious that such buds should not be used it would be an endless job to examine every bud before it was put into a seedling.

It has been proved by numerous experiments that buds from a bearing orchard are much stronger than those from a nursery row, although trees grown from buds which came from the nursery will in a year grow taller but not so large in caliper as those from the orchard. The buds used in the so-called ice-box method came from profitable bearing orchards, where the varieties are true to name and the trees are free from all injurious pests and fungous diseases.

It is important that a man who is well trained in the nursery business should do the selecting and cutting of all the buds; the cutting should not be done by a gang of men, for their standards of selection would be different and there would be numerous mistakes. Immediately after the bud-sticks are cut they are sprinkled with water and placed in a cool, shady place which is protected from the wind. The bud-sticks are then leafed; that is, the leaves are cut off with a sharp knife, and about a quarter of an inch of the stem left to protect the eye of the bud. Only the well ripened part of the bud-stick is saved during this operation. After the bud-sticks are leafed, they are labeled and placed on a box in the sun in order that the outer surface may dry. Only one variety undergoes the operation at one time. After the buds are dried they are placed in the fumigating box, to clear the bud-sticks of all injurious insect pests.

STRIPPING THE LEAVES FROM THE BUD STICKS IN PREPARATION FOR FUMIGATING

The fumigation of buds, when properly done, is a most efficient and practicable method of keeping nursery stock free from injurious insects. The fumigating box is four feet long, two feet wide, and two ond one-half feet high, inside measurements. Its walls consist of three thicknesses of lumber, each layer running in a different direction. The spaces between the boards are filled with a preparation of tar, which helps to keep the box air-tight. Ordinary building paper is placed between the layers of boards. Around the edges of the lid there are several layers of canvas, which help to keep out the air. The chemicals used for generating hydrocyanic acid gas used in fumigation, are:

1. Fused cyanide of potassium.
2. Sulphuric acid.
3. Water.

Cyanide should be guaranteed 98–99 per cent which is practically chemically pure; if much below this strength, it should not be used. The best grade of commercial sulphuric acid, with a specific gravity of at least 1.83, should be used. A grade known as chamber acid used ordinarily in the manufacture of fertilizers will not do, and under no circumstances should it be employed. Water from any source will suffice, the only requisite being that it is clean. In combining the chemicals, first measure the acid in a graduated glass beaker and put it in any container such as an earthenware crock. Second, measure water in the same beaker and pour it on the acid. Third, drop in the cyanide, wrapper and all, close the door quickly and leave the desired length of time. When water is poured into the vessel with sulphuric acid, some heat and fumes are given off, which is not dangerous. As soon as the cyanide is dropped into the acid and water, there is a bubbling and sizzling simliar to that produced by a piece of red hot iron when plunged in cold water. The result of this chemical action is hydrocyanic acid gas, known, when in liquid form, as prussic acid. Hydrocyanic acid gas has an odor somewhat similar to that of peach pits. Great care should be taken to inhale none of the gas, for it would cause instant death. Plants are less injured by a short exposure to a relatively large amount of gas than by a long exposure to a relatively small amount. A stronger dose in shorter time is more destructive

to the insects affecting the tree. The resisting power of a tree is dependent largely upon the open or closed condition of the breathing pores, the peculiarities of the cell contents and the temperature of the enclosure (box). From 0.05 to .1 or .105 grams of cyanide of potassium should be used for every cubic foot of the air space enclosed. The process of fumigation should continue about half an hour.

Immediately after the fumigation is over, the budsticks are taken out and sprinkled with water. The bud-sticks are then wrapped in bundles with wet sacks. Much precaution must be taken here, since if the bud-sticks are not dampened and cooled quickly they are likely to spoil. The bud-sticks are now put into the ice-box, where they should remain until most of the heat is removed—twelve hours if possible. The bud-sticks plump up while in the ice-box, but there is no danger of their water-logging as in the case of the "bucket method." The lower the temperature the better the success with the buds. The box should always be kept full of ice. Buds can be kept a week or more by this method without any signs of damage, but with the other methods it is impossible to keep the buds in good shape for any length of time.

The ice-box is five feet long, three feet wide, and three feet deep, inside measurements. On the outside of this box there are two layers of one and one-fourth inch board, one layer making right angles with the other. Between these two layers of board there is ordinary tarred paper. Between the double outer wall and the single inner one there is a space of six inches, which is filled with sawdust. The inner wall is made out of first-class flooring, which makes the inner compartment air-tight. The inner compartment is covered with tin in order to keep the inner wall from rotting, and to help keep the box air-tight. In the inner compartment there are three sections. The middle section is used only for ice (of which it holds about 700 lbs.) and the other two are used for the storing of the bud-sticks. The edges of the lid are covered with canvas so as to make the whole box air-tight. The lid con-

ICE BOX SHOWING METHOD OF CONSTRUCTION AND COMPARTMENTS

sists of four layers of board. The ice-box is kept on a truck so that it can be carried from one block of seedlings to another. The box must be kept locked so that the budders will not disturb the contents. It is best to let only one man have the key, and allow him to distribute the various varieties of buds to the budders. This one man is able to control the distribution of small quantities of buds to a gang of over a hundred men and boys as they need them.

In 1910 the Harrison Nurseries budded about three and a half millions of peach trees, which produced only about 500,000 merchantable trees. The budding was in charge of an experienced man, but his methods of handling buds were found impracticable, and hence something different had to be adopted. At this point the writer received authority to take charge of the budding. He conceived the idea of using a refrigerator box filled with ice in order that buds might be kept cool and in a dormant condition. This method has been a success from the very beginning and has saved the firm several thousands of dollars.

Ice was first used in 1910 with Bartlett pear buds, with the result that the buds which were kept in the ice-box made an almost perfect stand, while those kept in the bucket gave only a partial stand. These buds were cut from the same trees and budded at the same time and on the same kind of seedlings in adjoining rows. It was also observed that the iced buds seemed to knit faster to the seedling than the others. Hence, in 1911, the entire budding of several millions of peach, apple, pear, plum, and cherry trees was handled in this way with remarkable success. As the buds came through the winter in prime condition, the same method was used for handling the buds in 1912, during which season there were budded over five millions of fruit stocks. At the present writing the buds which were put in during the summer of 1912 are showing an almost perfect stand.

During a quarter of a century in the nursery business the ice-box method has given the Harrison Nurseries the best stand of buds they ever have had.

SOIL ACIDITY

Dr. H. O. Buckman

DURING the last few years there has appeared in both technical and popular agricultural literature constantly increasing discussion and comment in regard to soil acidity. Perhaps no one problem of practical and scientific agriculture has received attention from so many directions. Nevertheless, no phase of soil technology is so little understood in general and so often misquoted, particularly by laymen as is the particular one under consideration.

At the outset the name itself is a misnomer and really should not be utilized to designate the condition in question. Its use continues perhaps because no better term has as yet been suggested. To make clear the misleading tendencies of the name an explanation of what is really meant by soil acidity is opportune. The so-called soil acidity may be of two forms, active and inactive or negative acidity. The former, as the name indicates, is induced by an actual acid in the soil and probably was the condition which gave rise to the name. The acid present may be hydrochloric, nitric, sulfuric, or what is a great deal more probable, certain simple or complex organic acids. These tend to react with and use up the bases in the soil particularly calcium, the active element of lime. It is probable that very few soils are actively acid, as ordinary

soil conditions do not long permit the presence of an actively free acid. Hence, the misleading tendencies of the term soil acidity. However, the continued use of certain fertilizers as ammonium sulphate may turn a soil acid by liberating sulfuric acid. This has been shown by certain well known experiments, but is only brought about after many years of continued use.

The second form of acidity, and really the more important, inactive or negative acidity, accounts largely for the so-called acid conditions in many soils, particularly those of southern New York State. Inactive or negative acidity may be induced by several conditions, one being the presence of carbohydrate materials in the soil capable of reacting with calcium in a way somewhat similar to acids, but of course not imparting actual acid conditions thereto.

Insoluble acid salts not satisfied in their content of basic constituents also have the power of taking up and holding by chemical fixation the calcium of the soil. A third factor may be the absorptive effect of certain finely divided materials in the soil called colloids. By a simple physical absorption, calcium in particular may be retained from plant utilization. Negative acidity, therefore, while seldom maintaining in the soil actual acid conditions, functions in the same general way as an acid, namely, in the withholding from crops calcium compounds necessary for the furtherance, either directly or indirectly, of plant growth.

For all practical purposes, therefore, we may consider soil acidity, be it negative or active, simply as the lack of basic matter in the soil. As calcium is probably the most valuable in this respect, acidity resolves itself into the need of lime on any particular soil. Just what the different effects upon the crop in satisfying the soil as regards lime may be, is a somewhat difficult proposition to answer specifically. An alkaline soil condition affects most plants differently and usually in most devious and indirect ways. The effects of soil acidity then are mostly indirect through modified chemical, biological and physical conditions in the soil. In a great many cases in acid soils, nutrient elements fail to pass into solution, beneficial bacterial activities cease or are checked and the soil may become in bad condition physically. Also, often because of poor tilth and improper aeration with the necessarily feeble action of certain organisms, and possibly an increased function of others, toxic material may develop which only aids the more in the depression of crop growth. The effects of adding lime are mostly indirect, although quite marked and distinct. Most ordinary crops grow best in a neutral or alkaline medium.

Some soils, while not distinctly poor soil, may be strongly in need of lime. The detection of a so-called acid soil is, therefore, of vital import to the farmer. This may be done in several ways, all of which have their active adherents. One of the best means of detecting the need of lime is to observe the physical condition of the soil, the character of the crop, and the presence of certain weeds. Acidity generally tends to depress crop yield and will ultimately impart a bad physical condition to a soil. Paint brush, sorrel, moss, ferns and Canadian rye grass are considered as evidence of lack of lime. These plants may not necessarily be acid loving plants. They often appear on an acid soil because nothing else will grow there.

The use of litmus paper is strongly advocated by some as a test for soil acidity, but from the fact that litmus paper is so likely to be lacking in the proper sensitiveness, it has not proven successful in the hands of the farmer. Even with the greatest care, it is highly probable that the litmus test is not accurate. The soil, being a highly absorbing body, tends to break up the litmus compound carried by the paper and may give a reddening or acid reaction when the soil is neutral or even strongly alkaline. This phenomenon is due to the fact that the litmus compound is a sodium salt of that dye.

The dye itself is red. Any absorptive matter such as cotton, carbon or soil may break up the compound selectively and produce a red color by liberating the litmus itself. The resulting color may be mistaken for actual acid conditions. Litmus paper, as an indicator for acidity, is therefore vitiated by absorptive action. An alkaline or blue reaction, however, when obtained by this test, is always a sure indication of plenty of basic material.

Another method, strictly a laboratory one and handled only by a chemist, is the Veitch method. This consists in adding lime water of standard strength to the soil according to a certain definite procedure until the absorptive power of the soil is satisfied. The amount of lime per acre necessary to correct the acidity is then calculated. This constitutes what is termed the lime requirement of a soil. One objection here is that this necessitates the sampling of the soil usually by the farmer himself. The chances of obtaining a representative sample are slight unless detailed directions are sent out beforehand. Then, also, good results in the field can be obtained by adding amounts of lime far less than those indicated by the Veitch mode of analysis. The method is at best, therefore, but an approximation as its accuracy is barely within five hundred pounds of lime per acre. No one determination can alone express the lime needs of a soil when both acidity and alkalinity affect the soil and crop in so many different ways.

The real issue then is to first determine whether the soil is acid and then apply lime. Probably the most rational method is to first examine the soil, and the vegetation for lime need. If any suspicion exists, even of slight acidity, utilize neither litmus paper or the chemical test described above. Simply treat a plot of ground, a strip across a field, or even a small field, wholly with lime and watch results. The effect indicates the need of this particular soil and is a specific answer to a specific inquiry. Generalizations are of little value in the ultimate analysis of a soil's need. The sooner, therefore, that the farmer begins experimentation along rational lines, the better agricultural conditions will become. One point must be kept in mind, however, in the use of lime. Keep the organic matter up by every feasible means. The increased crop yield from the use of lime on an acid soil is a serious drain upon the humus constituents, so necessary to proper crop growth and so likely to be low on soils of recently corrected acidity.

WHAT THE COLLEGE OF AGRICULTURE IS DOING TO HELP STUDENTS GET PRACTICAL EXPERIENCE ON FARMS

Professor J. L. Stone

THERE are several phases of agriculture. It may be considered as a science, as an art, or as a business.

The science of agriculture considers the facts and laws of nature in their relation to the production of economic plants, animals, and manufactured agricultural products. The art of agriculture is practical knowledge of the operations used in the production of agricultural commodities and skill in the doing of these operations. It implies some knowledge of the science of agriculture, but often reaches quite high development with very little such knowledge. The business of farming is an attempt to combine the science and art of agriculture for the purpose of making a living and earning a competence.

Agricultural business success is impossible without considerable knowledge of the art, and reaches its highest point only where both the art and the science are of high development.

The science of agriculture is well adapted as a subject for teaching in the college classroom and laboratory, and much about the business of agriculture may be taught there, but the art of agriculture can only be acquired by actual experience on a farm.

In the early days of agricultural colleges the students were few and practically all of them came from farms, and were familiar with farm methods and farm affairs. There was little occasion for much teaching of the art of agriculture. A suggestion as to an improved method was easily grasped by the student and he was able to apply it. In recent years the number of students has increased very greatly and the proportion of those who are inexperienced in agriculture is very large. More than two-thirds of our present freshman class have had little or no farm experience. How shall they get this necessary element of an agricultural training? This is a difficult problem to solve.

Many of the courses in the College of so-called applied agricultural subjects, such as Soils, Farm Crops, Farm Mechanics, Dairy Industry, etc., have laboratory periods connected with them and tend to make the student familiar with the things and operations of the farm. So far, good; but there is not and cannot be enough of this work to meet the requirements.

The College farm should furnish opportunity for such training, and to some extent it does, but the extent of this opportunity is vastly less than the casual observer would expect. In the first place, the number of students needing this training is so large that even with our large farm it is a physical impossibility to handle them. Probably two hundred members of the freshman class should be taught to plow. If all the land available for crop growing were devoted to training these students in plowing, it would not be sufficient to enable them to become proficient plowmen. If the land were plowed by students at such times as students could do it, it would not be possible to successfully grow the crops upon it that are required to sustain our live stock.

In the second place, students carrying a university schedule have not the time to get this practical training while in college. This training is not a matter of hours and days, but of weeks and months, and even of years.

Some effort is made to use the College farm for this work, but only for those students who are without any farm experience. Before the season

when classes can go out to the fields, they are instructed in harnessing, hitching, and driving horses. In the fields they follow the teamsters who are plowing, harrowing, drilling, etc., and later are given the reins while the teamster follows along to guard against injury to team. So far as possible we give them a hand in whatever is being done, but we do not delay the work that it may be done by students. This little practice helps these inexperienced students considerably when they get jobs on farms, but it is scarcely a drop in the bucket in comparison with the practice they need. We urge students not to depend upon the practice they can get during the little time they can spare during the school year, but to get on ordinary, practical farms during the months of vacation or, better, to take a year or two out of college and get an experience that is worth while. Furthermore, students are advised that the College farm is not a desirable place to get farm experience.

It is not a normal farm. Much of the activity on the College farm is, of necessity, devoted to investigation and demonstration that no farmer would attempt. The demands made upon the Farm Department by the other departments and the University compel it to use equipment and methods that are not normal for a private, practical former. The student should go to a normal farm.

To help students to get places on farms we run a sort of employment bureau. Formerly we sent hundreds of letters to farmers in various parts of the state apprizing them of the fact that there were students in the College desiring work at various times and for various periods. More recently we have used the *Announcer* of the College of Agriculture as the medium through which to reach the farmers. A month or two before the close of the winter courses and also before the close of the school year, paragraphs in the *Announcer* call attention to the several classes of persons who seek places on farms through the College: viz., prospective students who desire to get experience before entering college; inexperienced students who want vacation work chiefly for experience; experienced students who want work for the pay they can get; and those who are completing their courses and want permanent positions. Many rural papers copy the paragraphs from the *Announcer*, so the information regarding student help is quite widely disseminated. The result is that there is usually received a large number of applications for student helpers.

There is a great deal of difference in students as to desires and capability, and there is a great difference in the places offered. The effort is to direct students to the places where they will meet the requirements most satisfactorily. This is difficult for we do not know either the students or the places well.

The results are variable—often satisfactory, but sometimes misfits occur. As these lines will be read by students chiefly, I may be allowed to address a few words to the less experienced. You go for experience chiefly and desire to try your hand at everything, but desire to leave a particular task as soon as you think you know it (or you tire of it). The farmer hires you because he is running a business and wants work done. He is not running an instruction camp. He must employ his help to get the most accomplished.

As a rule, a student must accept the situation as he finds it. As in the city, he must earn the opportunity to try his hand at the more important work.

The habits of life of farmers and well-to-do city people are very different. Probably farmers live as well, or better, than city people of the same income. But the living is different. There is less variety because the farmer depends upon the products of his own farm so far as possible. It is not so dainty, but it is wholesome.

Heretofore when you have gone to the country you have been a guest. Do not expect to be entertained nor waited on, but lend a hand.

FARM RECORDS

W. L. Elser

Ohio Experiment Station

EVERYONE acquainted with the many phases of farm business knows that it is a good sized undertaking to attempt to keep account of everything, and the excuse generally given "have no time to keep accounts" sounds pretty well. However, if the records are kept each day, the time required will be but a few minutes per day, and the returns in many cases will be more for these few minutes than for the rest of the day's work. If a man lacks interest in the business in which he is engaged, he may eke out an existence, but will never be very successful. In order to be successful, one must know which of the varying enterprises are most profitable.

Many manufacturing establishments are more and more impressed with the desirability and necessity of ascertaining the exact cost of their product, and trained experts are frequently employed in the solution of this different problem. The manufacturer knows the cost of his goods, and in determining their selling price he adds a certain percentage for profit. If he did not know the cost he could not fix the selling price. However, he does know the cost, and in determining it, he has taken into consideration every item of expense; rent, hired help, insurance, taxes, interest on his investment, and his own time.

Someone has written that the most important farm implement is a lead pencil. Without some form of account, one cannot know where the profits or losses are. The keeping of accounts does not require an elaborate system, but may be made quite simple. The great mistake that is too frequently made by those wanting to keep their own farm accounts, especially beginners, is in attempting to keep too many accounts. This generally results in giving up the attempt in disgust, with the excuse "That it takes too much time," or excellent detailed records may be kept but the results never summarized, and little or no benefit is gained by having kept the records. As is shown in Farmers' Bulletin No. 511, "Farm Bookkeeping," it is generally better to keep a few accounts accurately and to interpret the results, than to attempt to keep all the accounts and not be able to make them of value in succeeding years.

Besides helping to fix the selling price by determining the cost of production, farm records increase one's knowledge of his business. With this increased knowledge, one should be able to stop many of the economic leaks. From the annual summaries it is possible to determine what enterprises have proven most profitable, and to plan each succeeding year's work with greater success, for figures, if heeded, guarantee success.

The keeping of farm records or farm bookkeeping is very different from ordinary bookkeeping, and we do not think that any one method can be prescribed as being the best for all farms and all farm conditions; but, each individual should work out a system that is best suited to his conditions. After one has once worked out a system for himself, he understands it better, and is more likely to carry it out, than if he attempts to use a system someone else has worked out for him, and which may not be applicable to his particular conditions. Farm bookkeeping is not a question of forms, but a question of what records to keep and how to use them. No matter how carefully the forms are worked out, they will not get good farm records unless the person using them has a very clear idea of the purpose of a record. The forms should be as simple and with a minimum of detail as is consistent with the results desired. However, no matter how thoroughly the above details may be worked out, the success of the system depends upon regular

entries made on the day the work is done, or the transaction takes place, and in the summarizing of the results at the end of the year.

Of all of the farm records it is possible to keep, the inventory taken at the beginning and end of the year is the most important. This is the simplest form of farm accounting, and yet it is the foundation of every other form. No matter how well the labor, financial feed or production records may be kept during the year, but very few conclusions can be drawn without the inventories. One may think he is making a great deal of money because his bank account is increasing, while the inventories may show that this increase is at the expense of the investment in lands, livestock or machinery. Similarly, another may feel that he is not getting ahead because his bank account does not increase. A study of his inventories may show him to be considerable richer, but instead of putting his money into the bank, he has increased his capital.

These inventories should be taken with a great deal of care. Not only that one may know what his investment is, but it also aids materially in keeping track of various items, especially tools, which are quite apt to get lost or broken. In taking such inventories the writer has frequently mentioned articles which the farmer had, but had forgotten about. This is especially true of the smaller tools which are usually mentioned on the sale bills, as, "Other items too numerous to mention." They may be numerous, but, as shown in Circular No. 44, Bureau of Plant Industry, "Minor Items of Farm Equipment," their value frequently amounts to much more than is generally supposed.

It is quite probable that a great many farmers keep some sort of records of at least the majority of their transactions. This is to be commended, but if an inventory has been taken at the beginning of each year, the record of financial transactions will be of much greater value. From these we can now determine the income from the farm as a whole, the principal sources of income, the total expenses, and the distribution of these expenses. From these records one may get a very good idea of the business as a whole, but the careful analysis of each farm enterprise cannot be made without further records, of which the entire labor cost is one of the most important.

One can scarcely pick up any agricultural paper but that he does not see an article on the cost of some farm enterprise. However, too frequently the writer of the article has entirely disregarded the item of labor, especially if it has been done by himself and his family. Or, if the labor is shown it is usually in terms of dollars and cents rather than in man hours and horse hours; and since the rate of labor varies in different sections such records are of little value to anyone, except to the man who has kept them.

We will not go into detail at this time as to factors and records which are essential to working out the rate per hour of man and horse labor. However, if complete records of every enterprise are desired, the records previously mentioned must be supplemented with feed and production records notes regarding yields, materials, and supplies used, personal and household expenses, interest paid on indebtedness, and the value of all farm products that go toward the living of the farmer and his family.

We do not believe that every farmer should be encouraged to keep accounts unless he has an inclination for this method of studying his business. However, this inclination and the desire to do better should be cultivated. The kind of accounts to keep will depend on the results desired, but it is always best to start with the simpler form and work out the details of the more complex forms gradually, than to start with too many details without knowing just what is wanted, and becoming confused, discouraged and giving up the attempt in disgust.

RELATION OF COLOR AND SEX OF BARRED PLYMOUTH ROCKS

Dr. Philip B. Hadley

Rhode Island Experiment Station

SOME of your readers may be interested in the recent discussions regarding the standard requirements in the barred plumage pattern in the Barred Plymouth Rock breed of fowls. I am heartily in favor of obtaining a standard in which different requirements are set for the male and female with respect to the barred pattern, and I am writing at this time merely to indicate how this is a perfectly natural conclusion and one that is supported by every fact which we know regarding the nature and manner of inheritance of this character, barring.

In the first place it may be pointed out that when one considers the "barring" of poultry, his attention is usually focussed upon the dark bands running across an otherwise light feather. When he thinks of the inheritance of barring he has in mind the transmission of these dark bars from one generation to another.

Now, it appears from much investigation of the method of inheritance of this character, as well as the coat-color of many species of mammals, that the above-mentioned conception of barring is not entirely adequate. We know of course that there is some "factor" in the germ cells of the birds, representing this character; and that, if that "factor" is passed on to the next generation, barring will result in the progeny. So much is clear. But here is the main point: we must not focus our attention upon the dark bands of the feathers, but upon the light ones. There can now be no doubt whatever, that the thing that is inherited, the factor that brings about the barred plumage pattern in a bird, is not something that marks a dark band across the feather, but it is something *which keeps the black from showing in all other parts of the feather*. Thus the "barring factor" is, in reality, *a factor which inhibits or restricts the appearance of black*.

One other point should be mentioned before we are ready to apply these facts to the formulation of standard requirements for Barred Rock plumage. And this deals with the constitution of the male and female Barred Plymouth Rock with respect to the "barring factor."

When single comb is inherited by a bird it is inherited equally from both parents; both contribute toward it. The chick, whatever its sex, receives some "single-combness" from its father and some from its mother. It has, so to speak, a double dose of the single comb character and is therefore *homozygous* for single comb. Many characters of poultry are inherited in this way—that is, equally from both parents

But some characters obey quite different laws of inheritance and barring is one of these. Barring is not, in other words, inherited equally from both parents. It is true that Barred Plymouth Rock males always have a *double dose* of barring, one having been received from the father and one from the mother. Both male and female parents have a part in the production of the barring of their *male* progeny.

In the case of the female the condition is different. *Barred Plymouth Rock females never have more than a single dose of barring*. They never receive it from more than one parent; *and that parent is always the male*. When Plymouth Rock females form their eggs (i. e., before fertilization) only one-half of the number receive in their making a dose of the barring factor; to these eggs (as to all the eggs) will be added a single dose of barring from the male, so that the new individuals will be endowed with a double dose of barring. *Such individuals are always males*.

On the other hand the other half of the mother's eggs do not receive from her a dose of the barring factor. All the barring they ever get comes from the male—a single dose. The new individuals arising from these eggs, therefore, start life with only a single dose of barring; and *such individuals are always females.*

To put the matter in another way: The Plymouth Rock male has the ability to transmit the barred character *to both his sons and daughters.* But a Plymouth Rock female can never transmit the barring character *to her daughters.* All the barring that she possesses goes to her sons, and were it not for what her female progeny receive from the male, these daughters would be destitute.

A male Barred Rock chick, therefore, inherits barring from both his father and his mother, but a female inherits barring from the father only. Hence, all pure bred Barred Plymouth Rock males possess a double dose of barring and all females possess but a single dose. This can easily be proved experimentally. Cross a B. P. R. male on R. I. Red females and all the progeny will be barred; the males will be fairly dark. On the other hand, cross a R. I. Red male on B. P. R. females, and only the males will be barred. The females which will be black were able to derive neither from the male nor the female side. If the female could transmit barring to her daughters, some of the daughters resulting from this cross would be barred. But such birds are never observed.

Now we know from studies on inheritance of many characters in both plants and animals that, those individuals which possess a character in double dose (i. e., are *homozygous* for the character) are often likely to show that character in a greater degree than do those individuals which possess it only as a single dose (i. e., the *heterozygous* individuals.) How does this bear on the case in point?

The Barred Plymouth Rock male has a double dose of the barring factor. That is, he has a double dose of the character which holds down or restricts the development of color (dark bands) in the feathers. Having a double dose of this inhibiting character (the factor for barring) the color of the male will be lighter than that of the female which has only a single dose (is heterozygous) of the inhibiting factor Where the inhibiting factor is double there the pigmentation will be restricted to the greatest degree. It seems very probable that breed as long as he may, a breeder will never be able to produce a Barred Plymouth Rock female that contains more than a single dose of the barring factor.

Is it not fully evident from this explanation, the various points of which are capable of complete experimental verification, that nature has set different grades of barring for the male and for the female, the former lighter, the latter darker? This natural difference is just as truly a form of sexual dimorphism as the differences which obtain between the male and female Brown Leghorn, or between the male and female Brahmas. In all these cases the differences are due to fundamental variations in the constitution of the male and female germ cells; and merely because the dimorphism of the Barred Plymouth Rocks is comparatively slight, this is no justifiable reason for overlooking it or for treating it as if it did not exist. It is a nice difference which, just as appropriately as other more striking cases of sexual dimorphism should be taken into careful consideration when standards in plumage color of plumage pattern in the Barred Rocks are under discussion.

THE IDEAL RURAL LIFE

By Joseph F. Wing

Associate Editor *The Breeders' Gazette*

THAT is a pretty large and general request that the editor of the CORNELL COUNTRYMAN makes upon me, to write on "The Ideal Country Life." Not that I do not know what is the answer, for I think that I do. It takes the young men for ideals, and to them we look to see developed an ideal life in the country. It has not yet been attained except in rare instances.

Primarily it depends upon keeping fertile and productive the soil. Ideals are hard of realization without money. Money comes freely only from soils rich in producing power. Almost one might say that the whole thing depended upon having a soil that is drained, supplied with limestone, given its mede of phosphorus and then sown to leguminous forage crops in regular rotation, the times coming pretty close together. Such a soil as that will grow crops that will bring money enough to make a basing principle for an ideal life in the country. Money is needed. For example, I write this having come from the field where I have been ditching. I am weary and sweaty and dirty. I need a bath before supper and I am going to have it. If the farm did not produce enough to pay for a bath tub and water to fill it, then I would fall short of my ideal in that respect. It is marvelous how the bath adds to one's happiness on the farm, to his self-respect as well, and to the happiness of the family around him.

Next after the fertile soil I should place the ability to work and the knowledge of how to work. Sometimes I wonder whether the life of the agricultural student is a good thing; he gets so out of touch with work! Would it not be better, possibly, if he were to remain on the farm working half a day each day and studying the other half day? Impossible to accomplish this, maybe, yet I myself, secured no college training but my mother early instilled into me a love of good books and my father gave money for their purchase. We worked very hard upon the farm, we read about soils and crops, we read of drainage and went out at once and dug ditches.

To have ability to work but to know when to cease from toil, come home, clean up and rest and smile! That is the hardest thing to teach, maybe. It is an act of intemperance to overwork, it is a crime to frown and be sour in the home. Well, let's paint a picture of an ideal country community. Every man works hard in the field with his own hands, all employ enough labor to let them do things well. They have made the soil dry and rich and productive. They have found their market and are producing just what they ought, so they are prosperous, all.

Every man has a neat and comfortable home, each one with sleeping porch and open fire. About the home are plantings of trees, shrubs and flowers.

The men go early to the fields. At four in the evenings they come home, bathe, clean up, and either rest on the lawn, or drive to a neighbors, or to the village. There are books, not trash, to read in the home. Each child plants things, is interested in things growing.

The country school is made a center. There are lectures there and innocent amusements. The country people live to themselves, avoiding the big towns. They read the best periodicals and books. They grow to be far more intelligent and better informed than are the people in towns who read only the daily newspapers or the latest trashy novels.

All this is easily possible but it is all based on the assumption that the soil be made dry, fertile and productive, the owners thereof given ideals, capital and energy to carry them out.

I know a few such communities. One is in Marlyand, yes, two or three such are in Maryland. Some are in Ohio. Some, let us hope, are in each state, and may their numbers increase.

STRAWBERRY TIME

Albert E. Wilkinson

STRAWBERRY time. Of what great significance is this term! How it brings to the mind a picture of those large, red, melting fruits, often creating in the individual an unlimited desire to be furnished with a generous helping of the king of all berries!

To think that, in the majority of cases, these fruits (called delicious) are purchased at the local store—bought quite often after they have been picked on some distant farm! Many times the fruit is green or not fully mature, and sometimes bruised or injured by the severe pressing while in the crates.

Contrast all this with the small patch of selected plants located in the backyard where the most intensive system of culture and care can be given. At the same time these are without weed competition besides being supplied with the correct amount of water, plant food and protection. The result will be large plants that are able to bear the full quota of blossoms in the spring. Later these blossoms develop into large, well-formed fruits, loading the plants to their fullest capacity. The fruits, when fully ripe, are quite easily severed from the plant by breaking the stem. The berries as gathered may be placed in a clean dish or box. They require very little handling during the harvesting.

How easy it is to have these small, but very satisfying beds of strawberries if only the necessary attention is given; and who would not expend the necessary effort to have wholesome fruit instead of the very inferior product from the grocer?

The Cornell Countryman

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JUNE, 1913

Surveys

The Junior Class has recently completed a survey of its members which we publish elsewhere. The class is to be congratulated on such a useful work. Such a survey should contribute much to the study of agricultural education.

Survey methods are becoming very important in the study of agriculture. We have seen what they are doing in farm management and pomology at Cornell. It is expected that the United States Department of Agriculture will soon make a survey of the farm home, which will give much light on the great problem of the farm home. The survey method will some day be applied to many branches of agriculture such as the country fair and the rural school.

We suggest to the presidents of the other classes that committees may be elected or appointed to make surveys in each class. We also suggest that these surveys may be uniform as to data so that they may be compared or combined. The work in making a survey is long and tedious perhaps, but the results are worth it and the training which the committees would get in survey methods is not to be forgotten.

Practical Experience

We are pleased to publish an article by Professor Stone on the employment of students by farmers. The need for practical experience is so great in the college and in many regions labor is so scarce that the employment of students by graduates ought to be more general than it is. Where there is so much to be gained on both sides, satisfactory terms can be easily arranged. It is well to remember that some students do not make satisfactory farm laborers and that some farmers expect too much of an inexperienced hand but this condition is not general. In order to make such employment a general practice, each must do his part.

Student Clubs

The Lazy Club which is the oldest professional club of the College of Agriculture and numbers among its alumni many of the most prominent horticulturists in the country, has recently undergone a somewhat radical reorganization. The great increase in the student body has made evident the fact that the Lazy Club as a single organization could no longer meet the needs of the students in Horticulture and Pomology. To meet these new conditions it was decided to reorganize the Lazy Club into three sections, namely, a section for the Fruit Growers, one for the Vegetable Growers and a section for the Florists. Each division is

to conduct its meeting and proceedings as best fits its needs but all are to coöperate in preserving and carrying on the name, ideals and purposes of the Lazy Club.

The Flower Growers have already held several enthusiastic meetings. The Vegetable Growers have made a fine beginning and their meetings have been very well attended. The Fruit Grower's Section held their first meeting with more than 50 students present.

The reorganization of the Lazy Club has met with student approval to a marked degree. The real interest and activity in each of the new sections is a promise that the Lazy Club will resume and strengthen its old position as an invaluable focus for exchange of professional thought and for the promotion of good fellowship among its members.

Plans

With this number a new board assumes control of the COUNTRYMAN. This board intends that the COUNTRYMAN shall continue to develop and improve. To this end we will welcome suggestions from our readers as to how we may make the COUNTRYMAN more effective.

It is essential that every graduate shall keep in touch with the College of Agriculture. The contact will be of great benefit both to the graduate and the college. An active graduate body, especially if it be organized is a great asset to any institution. It is our purpose to keep the graduates in touch with what is going on at the college both through campus notes and special articles. We expect to devote the former student notes of each number to certain classes which will be announced previously.

Our publication goes to practically every rural community in New York State, going largely to our graduates. We desire to present to them what is new in agriculture, whatever may be of use to them in their community or farm activities.

Inasmuch as the COUNTRYMAN is published monthly, we cannot be very active in the discussion of student problems. As Dean Bailey has said there is a need at the college of a daily publication to discuss these problems. In the absence of a more suitable agency we will discuss them to some extent. Owing to the large numbers at the college and its rapid growth, there are many problems and these must be solved all over again every few years. The COUNTRYMAN will feel that it is serving the College of Agriculture if it helps the student body to solve its own problems.

Appropriations

The College of Agriculture will receive $334,000 for the construction and completion of buildings according to the bill which has recently passed the legislature. Of this amount $129,000 will be used to pay off contracted work already begun and to erect two barns for hogs and sheep and a tool barn. Some of the other large items are for the completion of the heating plant, the auditorium and the new forestry building, additional small buildings for the Poultry Department and a new rural schoolhouse.

CAMPUS NOTES

The May Assembly was held on May 8th. Besides the usual talk by the Director, musical selections were given by the Girls' Glee Club and C. W. Whitney, '13.

Director Bailey spoke in part as follows: "If as your chairman says, you have received benefit from the College of Agriculture, I will say that the faculty receives a benefit by your stay. It is good for older men to be in touch with the hope, and ambition and energy of youth. We are sorry to see you go, and yet we are glad because now you will put the ideas you have gained, in practice.

It is a great thing to come to the end of a task so one can begin something else. We admire the spirit of a man eighty years old who sets out trees. He is not selfish. Not only is it never too late to mend but one is never too old to begin. It is worth while to finish a college course that you may begin life.

In college you bring together ideals, plans, processes, programmes. The college itself is a programme. One of the greatest joys of life, however, is the joy of accomplishment. Here is the difference between man and beast. No one has a right to live in this world unless he wants to accomplish something worth while.

I am glad to see the student body working out its problems. The plan for a student loan fund is very commendable. The matter of housing student clubs is to be solved. These clubs ought to have rooms. The liveliest bunch in the college just now is the girls' club which is raising $500.00 for a club building.

It is the purpose of the college that the students shall partake of its activities. We want to give them experience in applying knowledge. The college is a welfare organization, and the human problem is the important one.

I have spoken before of neighborliness. One of the clubs in the college is sending delegates to old and helpless people in this region. A survey is to be made of Tompkins County to find people of this kind. Let this work be done in a spirit of humility and kindness.

Have your ideas organized and a definite aim. It is a great thing to have a program. One may not know where he is to arrive but he can choose a direction. I hope everyone will feel it his duty to be responsible for something. Vice and graft are due to lack of responsibility in the training of youth. The farm boy is fortunate in having responsibilities. The growing sense of brotherhood gives us new obligations. Irresponsibility is laziness; laziness and shiftlessness are sins. In our relations to society we must express ourselves just as much as in the development of personal character.

I hope the college has made you sensitive to nature, thus giving you many of the satisfactions of life. Be sensitive to the conditions in which you find yourself. You will then be more sensitive to the expression of these things in literature. The inordinate reader has

not much else to do. It is not the amount but the spirit of your reading which counts. The more experience you have the more appreciative you will be.

The modes of literary criticism are according to the standards of 100 years ago. We ought to judge literature according to the spirit of the times. Great literature is being written today. A poet should get his inspiration as he goes along and not wait for moods.

* * *

The Third Annual Summer School in Agriculture will begin Monday, July 7 and close on Friday, August 15, 1913. Full information as to courses, admission, expenses and other details may be had from the Secretary of the College of Agriculture.

Each year the Summer School has been of increasing interest to many classes of students but particularly to teachers who desire instruction in agricultural subjects. This year, the courses of instruction offered will be far more detailed than ever before. Emphasis will be laid on individual work and on practice in the laboratories and on the farm. Outside the formal courses, the students will have the opportunity of consulting numerous experts in all the lines of country-life work.

A School for Leadership in Country Life will be held at the College, June 24 to July 4th, immediately preceding the Summer School of Agriculture. The school is open to all persons who are interested and more especially to those who occupy positions of leadership and influence in the open country.

* * *

The following assistant professors in the College of Agriculture have been advanced to full professorships: K. C. Livermore of Farm Management; M. W. Harper and E. S. Savage of Animal Husbandry; E. S. Guthrie of Dairy Industry; W. C. Baker of Drawing: and C. R. Crosby of Entomology Extension Work. H. A. Hopper has been elected Extension Professor of Animal Husbandry.

The "Comprehensive Handbook" a complete guide to the farms and buildings of the College of Agriculture will be ready for distribution next September.

* * *

Hebs-sa, an honorary senior society has announced the election of the following juniors: M. F. Abell, L. J. Benson, E. S. Bird, F. H. Durkan, H. F. Keyes, F. W. Lathrop, M. E. Maxon, B. J. Patterson, R. C. Shoemaker, R. F. Steve, J. J. Swift, J. R. Teall, S. H. Watson.

* * *

Helios, a senior honorary society of the College of Agriculture, announces the election of the following juniors:

M. J. Barrios, jr., F. J. Burgdorff, jr., D. S. Caldwell, L. E. Card, C. H. Guise, H. H. Knight, H. A. D. Leggett, S. R. Lewis, W. H. Lewthwaite, J. E. McGolrick, F. H. Millen, W. I. Myers, B. N. Phelps, H. V. Taylor, S. G. Updegraff, jr.

* * *

Director Bailey has indicated that if the girls will raise $500 before June 1st he will duplicate the amount, making a sufficient fund to start the building of a club house in the rear of the new Home Economics Building. The grounds about that section will further be developed into a girls' campus.

The agricultural girls are enthusiastic and determined to raise this amount.

* * *

Professor Wilford M. Wilson of the local station of the United States Weather Bureau appeared as one of the witnesses in the case between the cities of Auburn and the village of Moravia, N. Y. Records covering the velocity and direction of the wind for five years were shown in their bearing upon the question at issue, the transmission of bacteria from the sewage of Moravia down Owasco Lake to Auburn where the water supply has been seriously affected. This incident illustrates the value of the work done at the local weather station apart from its importance in the daily forecasts.

The Department of Forestry has just completed the planting of 40,000 trees on its land at Varna. The total plantings made by the department during 1912 and 1913 cover more than 50 acres. Most of this is white pine although several other species are being used on a smaller scale. This land is part of the 400 acres which the University purchased as a site for a future reservoir just above Varna. All that part of the tract which is above the flow line of the future reservoir has been put in charge of the Forestry Department by the trustees, thus giving the department about 200 acres of open land for experimental and demonstration plantations. This work has been done under the supervision of Professor Spring.

* * *

The class in Forest Utilization in the Department of Forestry spent the spring recess in the study of logging operations, saw mills, and wood-working factories in the Pennsylvania mountains under the supervision of Professor Recknagel.

* * *

The Forestry club which was organized in the fall of 1912 has had an active year, all of the meetings having been well attended and good spirit shown. This club is designed to bring together the men who are taking the professional forestry course.

* * *

Ithaca is to have a real Municipal Market. The Housewives' League in conjunction with the Ithaca Business Men's Association have laid careful plans and in a few weeks the market will be running full blast.

The market is to be located near the Lackawanna Station. It will supply a means whereby the farmer can sell his produce directly to the consumer to the profit of both. Such a plant has proven extremely successful in other cities and will without doubt, do much towards lowering the cost of foodstuffs in Ithaca. Among the faculty members interested in its success are Professor Fippin and Professor Tuck.

Prof. W. H. Chandler will take up the work of Research in Pomology next October. Mr. Chandler is now Assistant Professor of Horticulture in the University of Missouri, from which institution he graduated in 1905. He received his Master's degree from the same institution in 1907.

* * *

Mr. L. S. Tenny will be Professor of Rural Development and State Leader in Farm Demonstration, beginning with next October. Mr. Tenny since his graduation from the University of Rochester in 1902, has been engaged in Plant Pathology work, field investigations in pomology and in practical work on his large fruit farm at Hilton, N. Y.

* * *

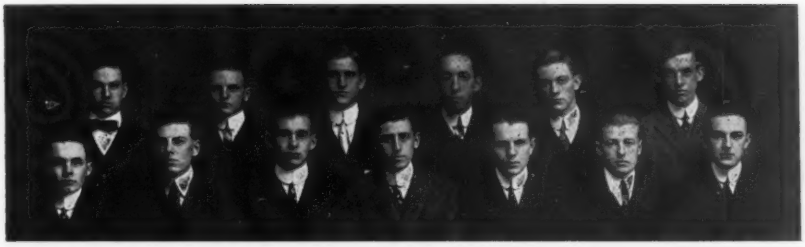
Professor H. H. Whetzel, of the Plant Pathology Department, will leave on June 11 for a fifteen months' stay in Europe. Next year is Professor Whetzel's sabbatical leave, and he will return in time for the beginning of University work in the fall of 1914.

Professor Whetzel will spend a month in Denmark, and thence he will go to Heidelberg to study with the noted German physiologist, Dr. Klebs, at the University of Heidelberg. Next summer, before returning to Ithaca, he will travel in Europe.

Dr. Donald Reddick will take Professor Whetzel's work in his absence.

* * *

An unusual amount of interest is being taken this year in the Intercollege sports and much importance is resting on the Agriculture crew to help us win the championship. Agriculture is now in the lead in the number of points won so far, with C.E. a close second. Our crew has been practicing regularly for some time, having been rowing regularly on the inlet ever since the Easter vacation. The following men are at present holding places in the Ag. boat: Stroke, E. G. Pearl; No. 2, R G. Sierk; No. 3, G. L. Philip; No. 4, F. O. Gavett; No. 5, H. C. Jackson; No. 6, F. W. Ohm; No. 7, M. F. Abell; No. 8, J. G. Wilson, with B. J. Pratt as coxswain.



F. W. Lathrop R. W. White E. C. Heinsohn B. P. Jones G. R. Attride H. E. Alleman A. S. Walker
J. J. Swift J. S. Brown O. M. Smith H. C. Stevenson D. Coffin H. M. Stanley

COUNTRYMAN BOARD

Work on the buildings is progressing rapidly. The Auditorium will be ready for the June Commencement Exercises if the weather forbids their being held in the open. A force of eighty men are now at work on the interior decorations which when completed will be of much beauty.

Several Ag. men are rowing with the varsity crew these being Commodore Bates, Dole, Chapman and Munn while Bird and Teall are regular members of the varsity squad.

KEY TO FRONTISPIECE

Seniors in the College of Agriculture

NUMERICAL LIST

1 A. Horner, Jr.
2 Miss I. M. Quirin
3 Miss H. W. Brown
4 Miss Caroline D. Higgins
5 Miss M. L. Robinson
6 Miss Ruth Graham, Sec'y
7 L. W. Kephart, Treas.
8 B. P. Jones, Pres.
9 F. S. Parker, Vice-Pres.
10 L. W. Crittenden
11 L. S. Ace
12 W. C. Stokoe
13 C. W. Bame
14 L. W. Long
15 H. M. Sherwin
16 O. U. Schaeffer
17 W. R. Greiner
18 L. N. Gibbs
19 C. S. Stowell
20 B. C. Copley
21 C. E. Dimon
22 B. H. Paul
23 Miss P. I. Boynton
24 Miss D. E. Kielland
25 Miss M. S. Avery
26 Miss S. G. Haswell
27 Miss H. Rundio
28 Miss A. Seaman
29 Miss Dora L. Earl
30 Miss Blanche Corwin
31 H. G. Honeywell
32 W. de S. Wilson
33 C. W. Whitney
34 H. A. Menjou
35 M. Rothstein
36 J. E. Whinery
37 W. A. Hutchison
38 J. H. Munn
39 Geo. H. Pound
40 J. S. Wight
41 F. D. Putnam
42 C. M. Franklin
43 Julius Smith
44 M. F. Swalwell
45 E. G. Greening
46 C. M. Austin
47 C. G. Crittenden
48 F. C. Shaw
49 H. M. Harrington
50 D. W. Hadsell
51 G. W. Lamb
52 E. A. Brown
53 J. S. Dorman
54 A. L. Dean, Jr.
55 O. M. Smith
56 W. H. Bronson
57 A. W. Gough
58 J. S. Clark
59 G. W. Kuchler, Jr.
60 R. H. Hewitt
61 B. H. Frary
62 R. K. Lloyde
63 H. A. C. Thomas
64 L. C. Armstrong
45 A. F. Coutant
66 H. M. Doyle
67 E. V. Underwood
68 H. V. Taylor
69 L. F. Whipple
70 C. S. Hahn
71 P. B. Barton
72 L. H. Spooner
73 F. G. Wischhusen
74 R. C. Beach
75 B. C. Georgia
76 D. H. Rosenberg
77 N. F. Stearns
78 H. L. Lautz
79 C. B. Raymond
80 A. M. Besemer
81 B. H. White
82 E. H. Dole
83 C. H. Elliott
84 E. S. Bates
85 G. L. Wallace
86 C. M. Rose
87 E. G. Joubert
88 H. F. Benton
89 G. C. Van Hoesen
90 R. F. Slocum
91 E. E. Madero
92 D. S. Fox
93 G. H. Newbury
94 A. P. Williams
95 J. A. Barlow
96 P. R. Guldin
97 G. H. Masland
98 O. B. Kent
99 J. S. Brown
100 N. D. Steve
101 W. B. Connor
102 B. W. O'Donnell
103 J. S. Champion
104 C. H. Deller
105 E. D. Strait
106 A. C. Fraser
107 B. L. Crandall
108 A. B. Genung
109 E. H. Stevens
110 E. J. Hoffman
111 G. W. Supplee
112 E. G. Misner
113 W. M. Peacock
114 A. J. Cochrane
115 R. W. Jones
116 J. W. Heebner
117 R. H. Denman
118 H. E. Schmelter
119 E. C. Crippen
120 W. B. Prophet
121 G. W. Hendry
122 H. E. Coffin
123 M. D. Leonard
124 R. E. Skinner
125 R. M. Williams
126 H. V. DeMott
127 L. E. Hogue
128 C. D. Bennett
129 A. E. White
130 H. E. Greiner
131 W. R. North, Jr.
132 K. R. Boynton
133 L. H. Facer
134 J. H. Cogswell
135 I. Paul
136 C. A. Bell
137 C. P. Alexander
138 M. B. Goff
139 G. S. Rose
140 S. E. Brink
141 W. H. Hamilton
142 H. W. Hagemann
143 E. F. Graham
144 G. D. Clarke
145 L. K. Chapman
146 C. W. Barker
147 H. F. Rhodes
148 H. W. Allyn
149 D. K. Wei

FORMER STUDENTS

W. S. THORNBER, M. S. A.

'05, M. S. A.—Director Thornber of the Lewiston-Clark School of Horticulture was born in Illinois in 1874 and moved with his parents to the Dakota territory in 1883.

Like many other middle Western boys, he was compelled to work his way through College. He spent five years in the South Dakota Agricultural College, graduating from there in 1897.

In 1898 and 1899 he did special work in Cornell University, taking his Master's degree from the South Dakota Agricultural College in 1899. The years 1904 and 1905, he spent in the Department of Horticulture of Cornell University taking his Master's degree from there in June, 1905. Early in the summer of the same year he was elected head of the Department of Horticulture of the Washington State College at Pullman, Washington, where he remained until July of 1911.

As an Institute lecturer upon general subjects of fruit growing and agriculture, Professor Thornber is very popular in the West, where he has given hundreds of addresses before Farmers' Institutes, Fruit Growers' Meetings and Conventions in the Pacific Northwest. He has made several trips into British Columbia, in the employ of the Provincial Government, lecturing before the growers upon practical phases of fruit work.

As a judge of fruit he is recognized as one of the best systematic pomologists in the Pacific Northwest.

At the close of the college year in 1911, he gave up his College work to accept the position of Chief Horticulturist of the Lewiston Land and Water Company, and the Lewiston-Clarkston Improvement Company and Director of the Lewiston-Clarkston School of Horticulture of Lewiston, Idaho. This position pays a salary of $5,000.00 per year with the privileges of professional and consultation work, thus making Professor Thornber easily the highest paid horticultural expert in the Pacific Northwest.

In addition to instructional work in the present position, he is interested in the community interests of the district and is carefully guiding the building of the Lewiston Orchards Community, which promises to be one of the most unique and interesting districts in the world.

'96 Sp.—T. E. Knowlton of Watertown, N. Y., is engineer and farmer in charge of a large drainage project in the Oak Orchard Swamp of Genesee and Orleans Counties. This project involves more than 25,000 acres of swamp mucklands.

'98, B.S.A.—A. R. Ward is in charge of the Veterinary work in the Philippine Islands with his headquarters at the University there. He has been doing a great deal to improve conditions in the Islands along veterinary lines.

'98, B. S. A.—E. Dwight Sanderson, director of the West Virginia College of Agriculture and Experiment Station at Morganstown, was in Ithaca during the third week in April accompanied by Mrs. Sanderson.

'05, B. S. A.—H. W. Hochbaum, formerly a teacher of Nature Study, Agriculture and Landscape Gardening at the State Normal School of Greeley, Colorado was transferred a year ago to a similar position in a normal school at Los Angeles, California. He now has been appointed in charge of the Department of Agriculture in a large high school at Boise, Idaho. His new position offers very unusual opportunities in the development of high school agriculture.

'05, B. S. A.—Ray C. Simpson who has been growing pecans extensively at Monticello, Florida since he graduated is planning to spend the coming summer in Ithaca with his family. He will take some work in the Summer School of Agriculture.

'07—Lynn F. Ayer has accepted the position as manager on the farm of John R. Loomis, Jr., at Glens Falls, N. Y.

'07–'10, W. H.—Harold Wilson was killed on April 14th, while blasting a piece of ground where an excavation was to be made. Three blasts were put off at once and in running from his own blast he ran directly over another one. He was well known and much respected among the fruit growers of the state.

'07, Sp.—H. S. Merry who for several years has been employed by the Department of Dairy Industry, has secured a position with the Empire Cream Separator Company at Bloomfield, N. J. Mr. Merry will be in charge of the testing department.

'07, B. S. A.—T. M. Morrison of the United States Soil Survey will return to New York State this summer to take charge of the Soil Survey work in Chautauqua County.

'08, Sp.—W. G. Depew is running a large grain farm at Canandaigua, N. Y. Mr. Depew started his farm at first with a well developed herd of Guernsey cattle but is now operating it as a general grain farm.

'08, B.S.—Mr. Lewis A. Toan of Perry, N. Y., has been appointed Assistant Secretary of the Rochester Chamber of Commerce in charge of the Farm Bureau Work of Monroe County.

'08—C. J. Grant is the County Farm Adviser of Hampton County, Mass., with headquarters at Springfield, Mass.

'09, Sp.—E. L. Baker has taken a position as teacher in the Perry Agricultural High School.

'01, M.S.A.—A. V. Steubenrauch, who this winter accepted a position in Horticulture at the University of California has been transferred back again to his former position in the Bureau of Plant Industry of the United States Department of Agriculture in charge of Fruit Transportation and Storage Investigations.

'10 Sp.—William E. Hymes has a position with the Hicks Nurseries at Westbury, Long Island, N. Y. He is doing plant breeding work especially in rhododendrons and pears. He is especially occupied with the Chinese Sand Pear which is not subject to blight.

'10, B. S. A.—N. R. Peet is in the nursery business with his father at Webster, N. Y. Mr. Peet was formerly editor of the COUNTRYMAN.

'11, Sp.—G. U. Tiffany is superintendent of the State Hospital Farm at Dayton, Ohio.

'11, B.S.A., '12, M.S.—Carlos Collado of San Jose, Costa Rica, has been visiting the college several days this week.

'12, B. S.—E. C. Auchter, instructor in Horticulture at the West Virginia College of Agriculture at Morgantown visited Ithaca during the second week in May.

'12, B. S.—H. B. Rogers is County Expert for Chautauqua County. His address is at Chautauqua, N. Y. The county has taken up this movement entirely on its own behalf.

'12, B. S.—Earl T. Maxon will have charge of the soil survey in Oneida County this summer for the United States Department of Agriculture.

'12, B.S.—H. B. Knapp has recently been appointed Assistant Professor of Extension.

'12, B. S.—G. C. Supplee, an assistant in the department of Dairy Industry has been appointed an inspector for the Navy butter at the Troy Creamery Company, Troy, Pa. This company has a contract for 80,000 pounds to be put up during May, June and July.

'13, B.S.—C. E. Dimon has been appointed Assistant in Vegetable Gardening in the Department of Horticulture.

'13, B.S.—H. M. Doyle has been appointed Pomologist to the Oswego Fruit Growers' Association with headquarters at Oswego, N. Y.

Ex '13—Mr. A. J. Mix has been selected to hold the fellowship in Plant Pathology and Entomology supported by the Champlain Valley Fruit Growers' Association of Clinton County, N. Y.

'13, B. S.—Miss Blanche Corwin has been appointed superintendent of farm work at the New Jersey Women's Reformatory, Clinton, N. J.

'13, B. S.—E. J. Hoffman has secured a position with the Castle's Ice Cream Company, Irvington, N. J. He will be in charge of the testing work.

'13, B. S.—L. W. Long will be with the Newark Milk & Cream Company, Newark, N. J. He will take charge of the chemical and bacteriological work of the company.

'13, B. S.—E. H. Stevens has just passed the civil service examination for the soil survey work of the United States Department of Agriculture.

'13, B. S.—C. S. Stowell has secured a position with the Sheffield Farms, Slawson-Decker Co. This is one of the largest milk companies in New York City.

'13, Sp.—F. E. Newland has secured a position as ice cream maker in a new department just installed by the Solvay Process Company, at Syracuse.

'13, Sp.—R. M. Tillou has been appointed milk tester in the department of Dairy Industry.

'13, B. B. S.—Charles P. Alexander, left the first of June for Orono, Maine where he will spend the summer in making a special study of crane flies in Maine. The results of his work will be published by the Maine Agricultural Experiment Station.

GENERAL AGRICULTURAL NEWS

A Students' Federation

The New England Federation of Agricultural Students held an annual meeting on May 3. The purpose of this federation is stated to be the further improvement and coöperation of agriculture with its allied sciences. Under its auspices judging contests are held at the various fairs and shows throughout New England. There seems to be a tendency among agricultural students throughout the country to federate in some form or other. These organizations ought to accomplish much if they have definite aims.

A New Agricultural Paper

The students of the College of Agriculture at the University of California have organized a new publication, the Journal of Agriculture. To quote from one of its editorials "its founders hope to see it take its place as one of the leading factors in the advancement of the college. It will accomplish this by gaining the interest of the farmers throughout the state in what the college is striving to do in agricultural science." On the Faculty Committee which helped in the organization was Professor J. E. Coit, a former editor of the Countryman.

Dairy Cleanliness Made Easy

Dairy cleanliness is no longer a theory, but a necessity. And the only question is how best may it be accomplished. Dairy and Agricultural Colleges, Creameries, Cheese Factories and large Dairymen almost without exception are using

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Dairyman's
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It does not end here, but the list includes thousands of small dairies, milkmen and farmers. With such endorsement, it is easy to determine that Wyandotte Dairyman's Cleaner and Cleanser is the right article for the dairy trade.

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Irvington, N. Y.
Des Plaines, Ill.

MOHEGAN FARM

MOHEGAN LAKE, N. Y.

This beautiful 350-acre modern farm bordering Mohegan Lake, near Peekskill, 40 miles up the Hudson from New York City, is the home of:

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BERKSHIRE SWINE
HOLSTEIN CATTLE
WHITE LEGHORN POULTRY
APPLES, PEACHES, CURRANTS

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C. A. BOUTELLE, Superintendent

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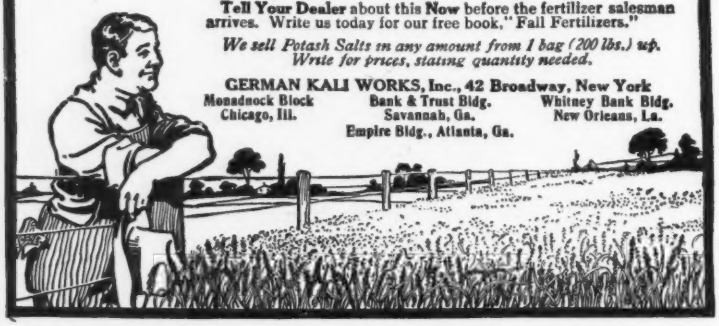

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	Eggs Laid 1st yr.	Eggs Laid 2d yr.	Eggs Laid 3d yr.	Total eggs laid 3 yr
Lady Cornell	257	200	191	648
Madam Cornell	245	131	163	539
Cornell Surprise	180	186	196	562
Cornell Supreme	242	198	220	660

DEPARTMENT OF POULTRY HUSBANDRY
New York State College of Agriculture
ITHACA, N. Y.

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When you pull the trigger you want it to go with lightning speed.
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Our lock was carefully and scientifically timed at the University of Cornell.
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When hammer struck it was traveling 233 inches per second.
We figure that this greased lightning speed will increase your score at least 5 per cent.
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Brand new catalogue FREE—describes 18 grades guns—$17.75 net to $400.00 list.
New edition to the Ithaca family is a little 28 bore, weight 4¾ to 5¼ pounds.
Our little 5¼ pound 20 bore is a howling success.

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CRAVATS	50c up	UNDERWEAR	50c up
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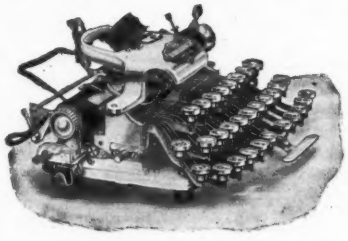

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Positively No Chemicals Used!

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Hats, Gloves, Shirts, Sweaters, Hosiery, Underwear, Slickers

in fact everything in furnishings in keeping with our high standard of Clothing

"If not we make it right" **118 East State Street**

Men who Live in the Open Appreciate the Best in Nature.

Men who Wear the Quality Shop Clothes

Appreciate the Best in Tailoring.

E. B. BAXTER,

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ONE PRICE TO ALL

ROTHSCHILD BROS.

"Student Supplies"

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Decorations and Necessaries

Carpets, Rugs, Bedding, Sofa Pillows, Banners, Desk furnishings, Lamps, Steins, Curtains, Books, Waste Paper Baskets

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Halftones *Illustrations*
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We are Specialists in

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You never yet found an orchard where the trees were picked up anywhere, at any old price, that begins to pay the cost of cultivation, picking, packing, and marking the fruit. The man who buys trees without knowing whether the buds come from bearing trees or from stock in the nursery, and who fails to find out about the way the little trees are cared for from the time the bud is inserted until they are ready for shipping, is sure to be disappointed in his orchard. He never will realize the returns that he would have received had he given proper attention to buying his trees.

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Berlin is about four hours ride from Philadelphia, on the "Eastern Shore" of Maryland, only seven miles from the Atlantic Ocean and Ocean City.

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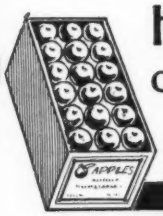
Tells of the best varieties, and tells *why* they are the best. Full of information of value to every planter. Send for free copy.



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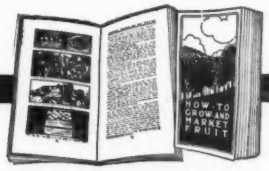

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CREAM SEPARATORS

Cheapest As Well As Best

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In the case of the Cream Separator, however, the **best** is fortunately the **cheapest** as well, and it is of the greatest importance that every buyer of a separator should know this.

Moreover, the **best** is of more importance in the case of the Cream Separator than in anything else, since it means a saving or a waste **twice a day every day in the year** for many years.

It is true that DE LAVAL Separators cost a little more in first price than some inferior separators, but that counts for nothing against the fact that they **save their cost every year over any other separator,** while they last an average twenty years as compared with an average two years in the case of other separators.

And if first cost is a serious consideration a DE LAVAL machine may be bought on such liberal terms that it will actually **save and pay for itself.**

These are all-imporant facts which every buyer of a Cream Separator should understand and which every local DE LAVAL agent is glad to explain and demonstrate to the satisfaction of the intending buyer.

If you don't know the nearest DE LAVAL agent simply address the nearest of our main offices as below.

THE DE LAVAL SEPARATOR CO.

NEW YORK CHICAGO SAN FRANCISCO SEATTLE

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